

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH ADMINISTRATION
BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

Project

Date

Author T. T. Terrell

TITLE

MOUNTAIN PINE BEETLE INFESTATION
IN WESTERN WHITE PINE
CEDARS SALE AREA
CLEARWATER NATIONAL FOREST
1953

Forest Insect Laboratory
Coeur d'Alene, Idaho

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In the Cedars area lying at the head waters of the North Fork of the Clearwater River near the Idaho-Montana state line is an isolated body of mature white pine covering some 25,000 acres. Ownership of the land is about 70 per cent federal and 30 per cent private. The stocking is excellent old-growth white pine mixed to various degrees and combination with Douglas-fir, cedar, spruce and white fir.

During the past two years the area has been opened up for logging by a large, long-term sale to private owners who are developing the area and plan to operate in their own and purchased timber for approximately 30 years. Concern has been expressed by the operators over the losses caused by the mountain pine beetle in the white pine timber.

To appraise the conditions and provide information that may be used as a basis of planned action this laboratory made a survey of the area during October. First, an aerial reconnaissance was made to determine the areas of heavy recent insect activity as depicted by red topped trees. The infested trees occur largely as small groups and are readily seen from the air. However, accurate counts are difficult to make because the dead and fading trees blend together. While the greatest value of this type of survey comes from a study of the infestation pattern formed by placing the counts and estimates on the map, ground checks of selected groups did show a reasonably high degree of reliability. In some instances, however, groups of infested trees were missed. Slash burning along a newly constructed logging road filled the river valley along the North Fork and part of Lake Creek with smoke effectively blocking out one area.

The attached map will show the red topped and faded trees observed. This map presents a pattern of insect activity, and formed the basis of the ground survey. It will be noted that very little infestation was observed in the heads of Osier, China and Laundry Creeks in sections 10, 11, 12, 13, 14 and 15.

Chain-wide sample strips on which all the attacked white pine hit in 1952 and 1953 as well as unattacked trees 8 inches in diameter and

^{1/} Prepared by T. T. Terrell, Entomologist

Over were run grid-iron fashion. The data were recorded at 10 chain intervals and the numbers of trees are shown on the attached strip map showing the lines of survey.

The timber surveyed fell naturally into three parts. 1) Osier Ridge-Deception Creek area, a large contiguous stand on moderate terrain consisting of a number of drainages and low ridges the steepest of which lies in the head of Deception Creek. 2) Spring Hill area, made up of steep heavily timbered slopes, stocked with 161-200 year old white pine-cedar, hemlock, and 3) North Fork area, a strip of type along the short steep slopes on the northwestern side of the North Fork of the Clearwater River.

A spotty infestation was found in the Spring Hill area and consisted of a few relatively large groups on the points of ridges not far from the river. The infested trees are not widely distributed and many of the spots can be seen from the river road. Several exploratory strips were run in the area because aerial observation was not possible due to smoke. The area is the most lightly infested of the three units surveyed.

The North Fork area has a dryer exposure with numerous short, steep ridges. Numerous groups of recently infested as well as long-dead trees occur frequently throughout the stand. This stand has suffered severely to that currently found.

In the larger Osier Ridge-Deception Creek compartment, the heaviest infestation was found in sections 17, 18 and 19 T. 40N., R. 11E. with a somewhat lighter infestation found throughout the remaining acreage. The ground and aerial survey findings agree substantially in the location of the more heavily infested spots.

The following tables will show the data obtained and the estimated number of infested trees by areas.

NORTH FORK

Table I

Acres	Sample Acres	Tree Data					
		Green	Av. DBH	Bark Beetle Attacked			
				1953	Av. DBH	1952	Av. DBH
500	26	451 ^{1/}	21.6"	12	23.0"	17	23.4"
Per Acre (trees)		17.3		.46		.65	
Per Cent of 1952 std. (trees)				2.5		3.5	
Estimated Total (trees)		8650		230		325	
Ratio of 1953: 1952 att.				.7:1			

SPRING HILL

Table II

1840	23.5	427 ^{1/}	23.0"	2	21.0"	0	-
Per Acre (trees)		18.2		.085		-	
Per Cent of 1952 std. (trees)				.5		-	
Estimated total (trees)		33,488		156		-	

OSIER RIDGE - DECEPTION CREEK

Table III

9760	423.5	8617 ^{1/}	24.5"	138	25.3"	95	26.3"
Per Acre (trees)		20.3		.326		.224	
Per Cent of 1952 std. (trees)				1.5		1.1	
Estimated total (trees)		198,128		3181		2186	
Ratio of 1953: 1952 Att.				1.4:1			

^{1/} Recorded by two inch diameter classes eight inches and over. Diameters ranged up to 66 inches but by and large the greatest numbers were close to the mean.

For many years this mature white pine has suffered from losses due to the activities of the mountain pine beetle. To date, the insects have "harvested" about half the original mature volume. Surveys in the area back to 1934, when the stand was considered valuable for watershed protection only, show losses from the mountain pine beetle to be serious.

In 1934 Terrell reports an infestation of .326 trees per acre on 19,000 acres^{1/} Four years later a similiar survey^{2/} showed an infestation of .224 trees per acre which equaled 1.37 per cent of the stems. A statement appears in the report - "In the past both the white pine and spruce stands have suffered badly by insect kill, which has destroyed a large per centage of the stands." - Gibson^{3/} found .275 infested trees per acre in 1944 and states that past losses have equaled 20-25 per cent of the stems. Records show the infestation continuing to a lesser degree in 1949 when surveys were made on parts of the areas.

These past records are quoted to point up the fact that the current losses from the mountain pine beetle is not a new outbreak but rather a chronic condition that has prevailed for a long time and is likely to continue until management changes the biological factors causing the loss.

1/ Status of the mountain pine beetle infestation on the Clearwater National Forest and adjacent lands 1934 - Terrell

2/ Forest insect survey of the white pine stand of the Clearwater National Forest and Clearwater Timber Protective Association 1938 - Terrell

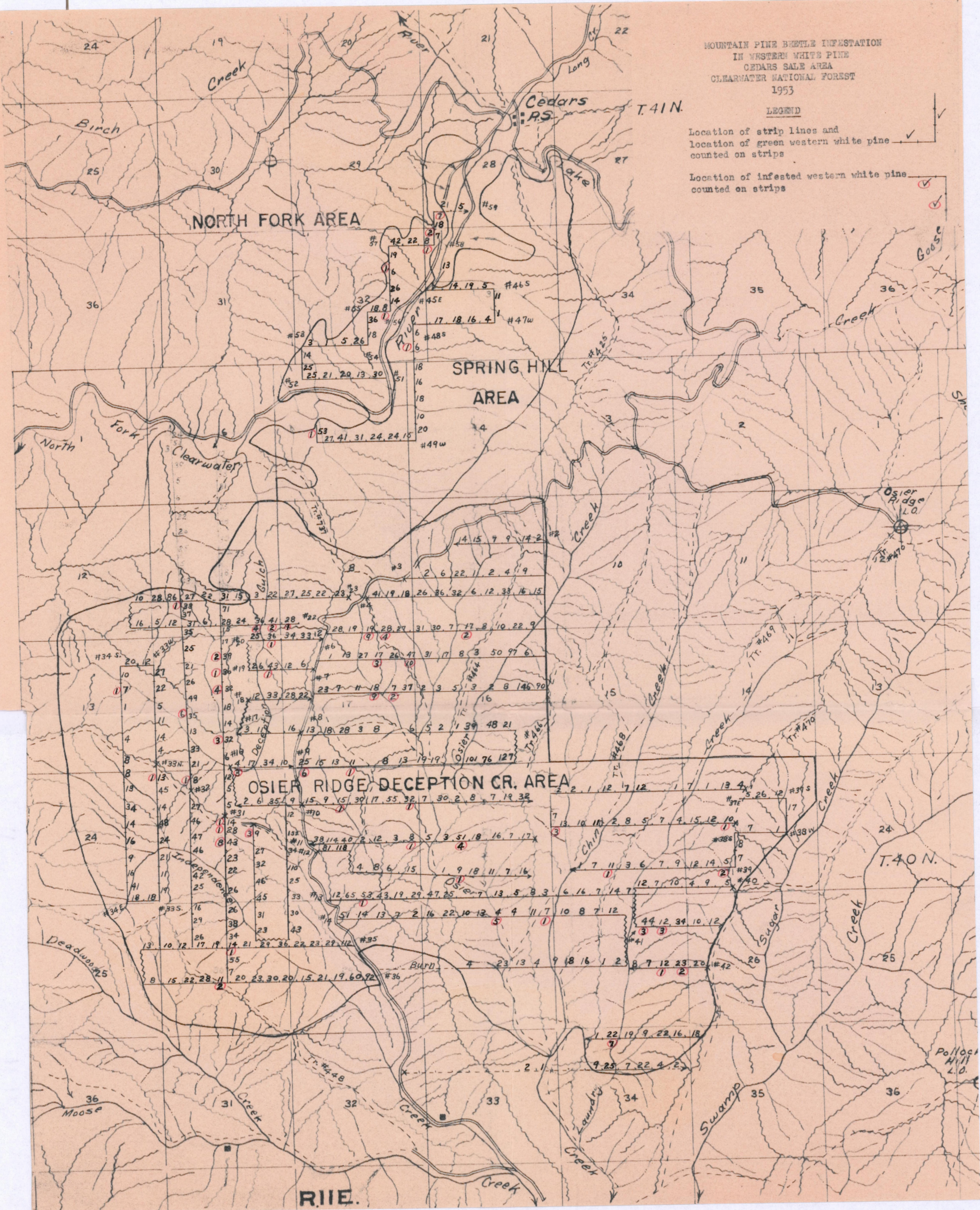
3/ Status of the Mountain pine beetle on the Clearwater National Forest and on lands Administrated by the CTPA - 1944 - A.L. Gibson

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LEGEND

Location of strip lines and
location of green western white pine
counted on strips

Location of infested western white pine
counted on strips



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(AERIAL RECONNAISSANCE)

LEGEND

Small numbers show counts or estimates of bark
beetle killed- white pine.

— — — Approximate boundry of some estimated
areas of infestation.

Note: type lines approximate, on this copy.

